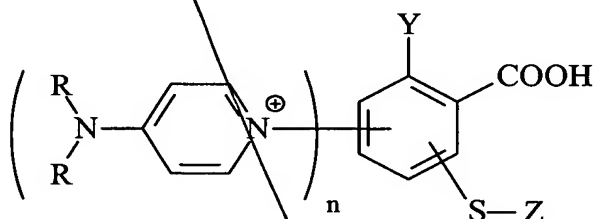


We claim:

1. A rhodamine dye or a salt thereof, comprising a rhodamine-type parent xanthene ring having attached to the xanthene C9 carbon a phenyl group that is further substituted with an
 5 ortho carboxy or ortho sulfonate group or a salt thereof, one to three substituted or unsubstituted aminopyridinium groups and a substituted or unsubstituted alkylthio, arylthio or heteroarylthio group, said rhodamine dye optionally including one or more linking moieties.

2. The rhodamine dye of Claim 1 which comprises the structure:



wherein:

n is 1, 2, or 3;

Y is a rhodamine-type parent xanthene ring attached to the illustrated phenyl group
 at the xanthene C9 carbon;

each R is independently selected from the group consisting of (C₁-C₆) alkyl and
 heteroalkyl, (C₅-C₂₀) aryl and heteroaryl, (C₆-C₂₆) arylalkyl and heteroalkyl, (C₅-C₂₀) arylaryl and
 heteroaryl-heteroaryl, or when taken together, R is (C₄-C₁₀) alkylidyl, (C₄-C₁₀) alkylene,

heteroalkylidyl and heteroalkylene;

S is sulfur;

Z is (C₁-C₁₂) alkyl, (C₁-C₁₂) alkyl substituted with one or more of the same or
 different W¹ groups, (C₅-C₂₀) aryl and heteroaryl, and (C₅-C₂₀) aryl and heteroaryl substituted with
 one or more of the same or different W² groups;

W¹ is selected from the group consisting of -X, -R, =O, -OR, -SR, =S, -NRR,
 =NR, -CX₃, -CN, -OCN, -SCN, -NCO, -NCS, -NO, -NO₂, =N₂, -N₃, -S(O)₂O⁻, -S(O)₂OH,
 -S(O)₂R, -C(O)R, -C(O)X, -C(S)R, -C(S)X, -C(O)OR, -C(O)O⁻, -C(S)OR, -C(O)SR, -C(S)SR,
 -C(O)NRR, -C(S)NRR and -C(NR)NRR;

W² is selected from the group consisting of -R, -OR, -SR, -NRR, -S(O)₂O⁻,

$-\text{S}(\text{O})_2\text{OH}$, $-\text{S}(\text{O})_2\text{R}$, $-\text{C}(\text{O})\text{R}$, $-\text{C}(\text{O})\text{X}$, $-\text{C}(\text{S})\text{R}$, $-\text{C}(\text{S})\text{X}$, $-\text{C}(\text{O})\text{OR}$, $-\text{C}(\text{O})\text{O}^-$, $-\text{C}(\text{S})\text{OR}$,
 $-\text{C}(\text{O})\text{SR}$, $-\text{C}(\text{S})\text{SR}$, $-\text{C}(\text{O})\text{NRR}$, $-\text{C}(\text{S})\text{NRR}$ and $-\text{C}(\text{NR})\text{NRR}$;

each X is independently a halogen; and

Y or Z is optionally substituted with L where L is a bond or a linker.

5

3. The rhodamine dye of Claim 2 in which L is selected from a hydrophobic moiety, a charged group, a member of a pair of specific binding molecules, a photo-activatable group and a reactive functional group.

10

4. The rhodamine dye of Claim 2 where Z has the form $\text{Z}^1\text{-L-R}_x$, or a salt thereof, wherein:

Z^1 is $(\text{C}_1\text{-C}_{12})$ alkylidiyl, $(\text{C}_1\text{-C}_{12})$ alkylidiyl independently substituted with one or more of the same or different W^1 groups, or

$(\text{C}_5\text{-C}_{14})$ arylidiyl, and arylidiyl, heteroaryldiyl and heteroaryldiyl independently substituted with one or more of the same or different W^2 groups;

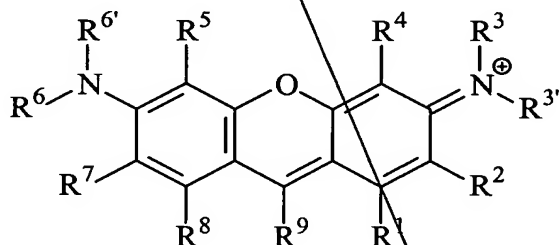
L is a bond or a linker; and

R_x is a reactive functional group.

5. The rhodamine dye of Claim 4 in which Y is selected from:

20

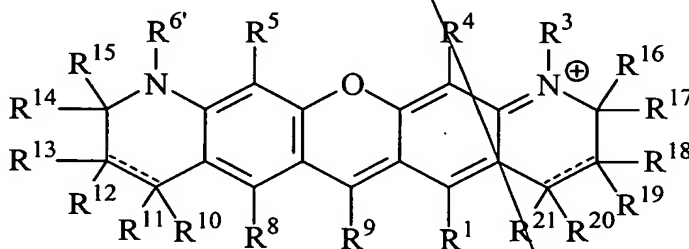
(Y-1)



;

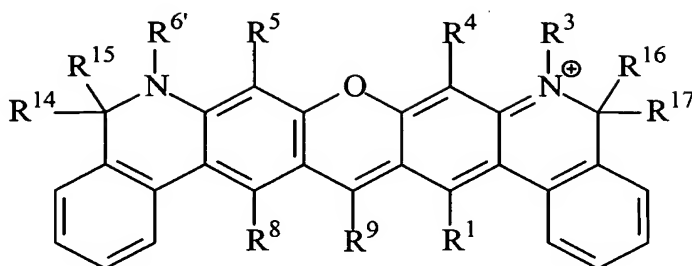
25

(Y-2)



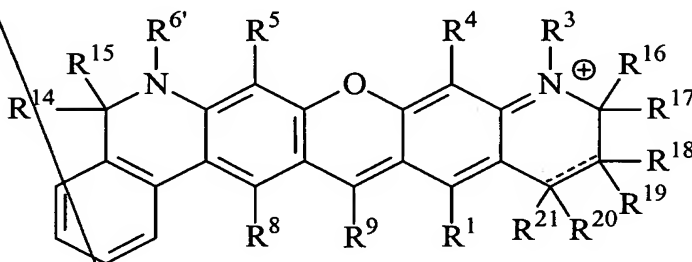
;

(Y-3)



; and

(Y-4)



and a salt thereof, wherein:

R^1 and R^2 when taken alone, are independently hydrogen or (C_1-C_6) alkyl;

R^3 and R^3' when taken alone, are independently selected from the group consisting of hydrogen, (C_1-C_6) alkyl, (C_5-C_{14}) aryl and arylaryl, or when taken together is (C_4-C_6) alkylidyl or alkyleno, or when individually taken together with R^2 or R^4 is (C_2-C_6) alkylidyl or (C_2-C_6) alkyleno;

R^4 , when taken alone, is selected from the group consisting of hydrogen and (C_1-C_6) alkyl, or when taken together with R^3 or R^3' is (C_2-C_6) alkylidyl or alkyleno;

R^5 , when taken alone, is selected from the group consisting of hydrogen and (C_1-C_6) alkyl, or when taken together with R^6 or R^6' is (C_2-C_6) alkylidyl or alkyleno;

R^6 and R^6' when taken alone, are selected from the group consisting of hydrogen, (C_1-C_6) alkyl, (C_5-C_{14}) aryl and arylaryl, or when taken together are (C_4-C_6) alkylidyl or alkyleno, or when individually taken together with R^5 or R^7 is (C_2-C_6) alkylidyl or alkyleno;

R^7 , when taken alone, is selected from the group consisting of hydrogen and (C_1-C_6) alkyl, or when taken together with R^6 or R^6' is (C_2-C_6) alkylidyl or alkyleno;

R^8 , when taken alone, is selected from the group consisting of hydrogen and (C_1-C_6) alkyl;

R^9 indicates the point of attachment to the *ortho*-carboxyphenyl bottom ring; and

R^{10} , R^{11} , R^{12} , R^{13} , R^{14} , R^{15} , R^{16} , R^{17} , R^{18} , R^{19} , R^{20} and R^{21} are each independently selected from the group consisting of hydrogen and (C_1-C_6) alkyl, or

when R^{10} , R^{11} , R^{12} and R^{13} taken together are (C_5-C_{14}) aryleno or (C_5-C_{14}) aryleno substituted with one or more of the same or different (C_1-C_6) alkyl, or

when R^{18} , R^{19} , R^{20} and R^{21} taken together are (C_5-C_{14}) aryleno or aryleno substituted with one or more of the same or different (C_1-C_6) alkyl.

5

6. The rhodamine dye of Claim 5 wherein R^2 , when taken together with R^3 or $R^{3'}$ is (C_2-C_6) alkylidiyl or alkyleno.

7. The rhodamine dye of Claim 6 wherein:

alkyl is methanyl, ethanyl or propanyl;

aryl is phenyl or naphthyl;

arylaryl is biphenyl;

alkylidiyl or alkyleno bridges formed by taking R^2 together with R^3 or $R^{3'}$, R^7 together with R^6 or $R^{6'}$, or R^4 together with and R^3 or $R^{3'}$, are ethano, propano, 1,1-dimethylethano,

15 1,1-dimethylpropano and 1,1,3-trimethylpropano;

arylno bridges formed by taking R^1 together with R^2 are benzo or naphtho;

alkylidiyl or alkyleno bridge formed by taking R^3 together with $R^{3'}$, or R^6 together with $R^{6'}$, is butano;

alkylidiyl or alkyleno bridges formed by taking R^5 together with R^6 or $R^{6'}$ are ethano, 20 propano, 1,1-dimethylethano, 1,1-dimethylpropano and 1,1,3-trimethylpropano; and

arylno bridge formed by taking R^{10} , R^{11} , R^{12} and R^{13} together, or R^{18} , R^{19} , R^{20} and R^{21} together, is benzo.

8. The rhodamine dye of Claim 6 in which L is a bond.

25

9. The rhodamine dye of Claim 4 in which R_x is selected from the group consisting of carboxyl, carboxylate, ester and activated ester.

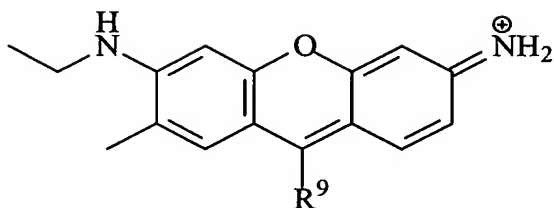
10. The rhodamine dye of Claim 4 in which Z^1 is selected from the group consisting of

30 (C_1-C_{12}) alkylno, (C_1-C_{12}) alkano, (C_5-C_{10}) arylidiyl and heteroarylidiyl, phenylidiyl, phena-1,4-diyl, naphthadiyl, naphtha-2,6-diyl, pyridindiyl and purindiyl.

11. The rhodamine dye of Claim 4 in which Y is selected from the group consisting of:

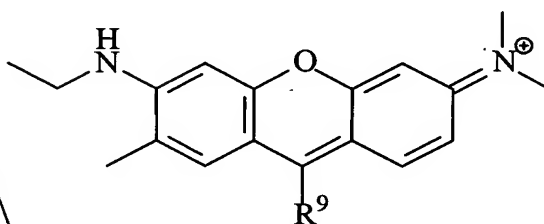
5

(Y-20a)



;

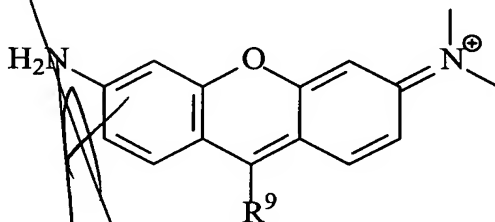
(Y-21a)



;

10

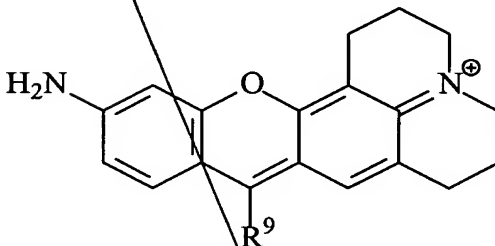
(Y-22a)



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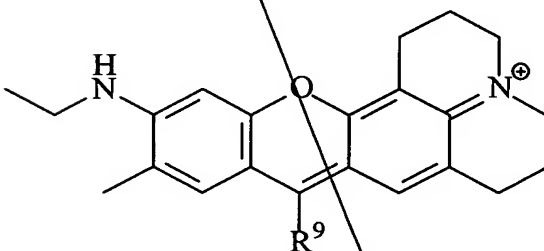
15

(Y-23a)



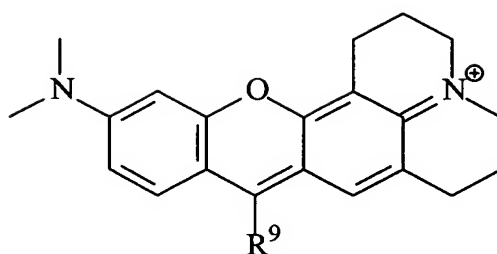
;

(Y-24a)



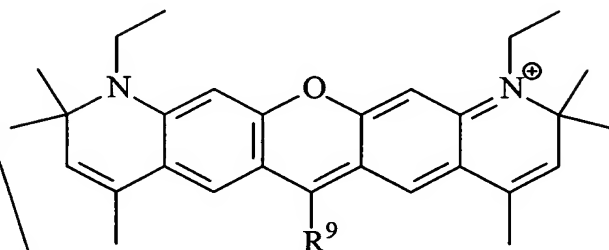
;

(Y-25a)

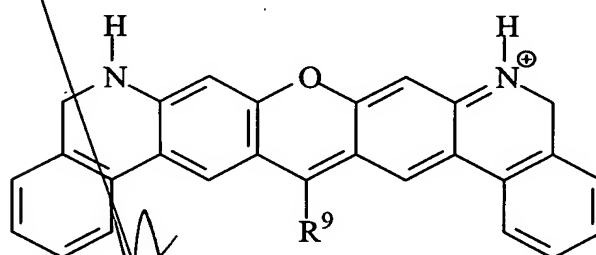


5

(Y-31a)

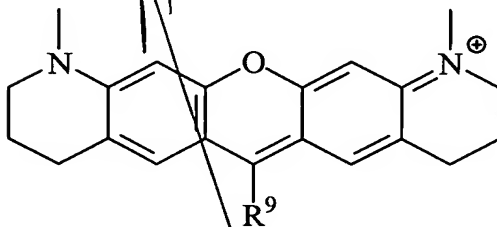


(Y-34a)



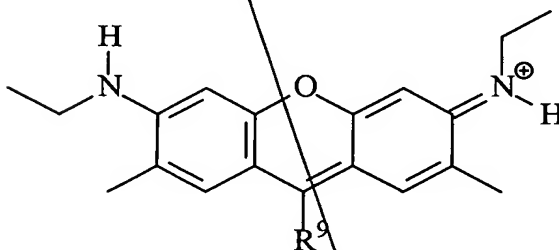
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(Y-35a)

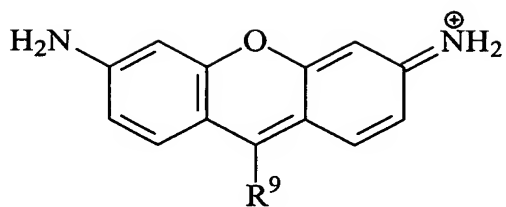


15

(Y-36a)



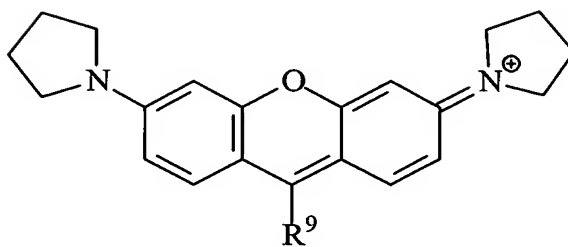
(Y-39a)



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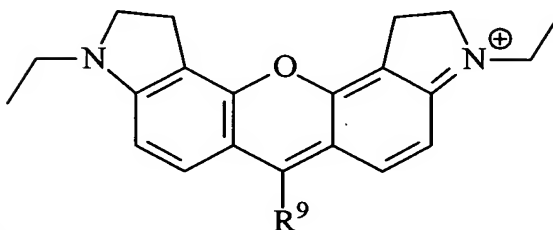
5

(Y-41a)



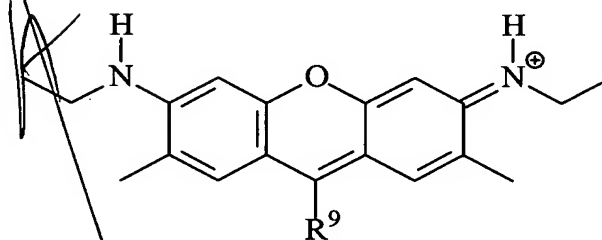
;

(Y-42a)



;

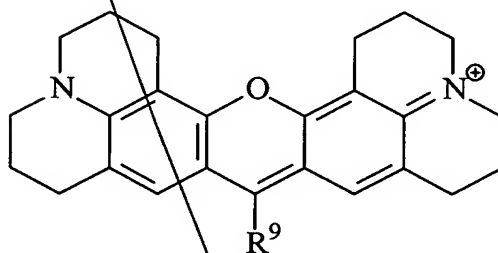
(Y-43a)



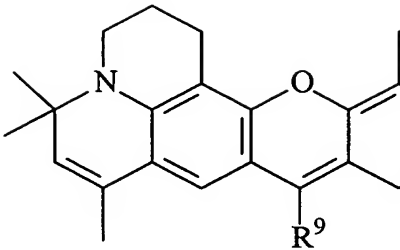
;

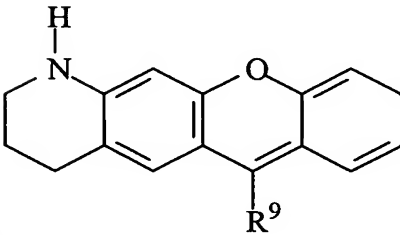
15

(Y-44a)



;





The rhodamine dye of Claim 4 in which L is a bo

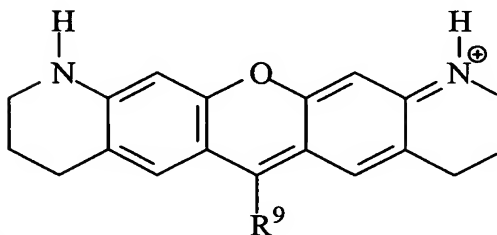
The rhodamine dye of Claim 4 in which R_x is sele
xylate, ester and activated ester.

The rhodamine dye of Claim 4 in which Z¹ is sele
no, (C₁-C₁₂) alkano, (C₅-C₁₀) aryldiyl and heteroary
phtha-2,6-diyl, pyridindiyl and purindiyl.

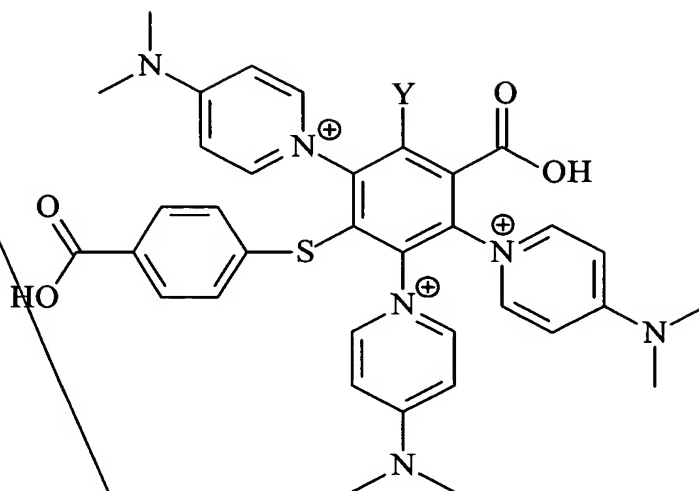
The rhodamine dye of Claim 4 which comprises th



(Y-46a)



12. The rhodamine dye of Claim 4 in which L is a bond.
13. The rhodamine dye of Claim 4 in which R_x is selected from the group consisting of carboxyl, carboxylate, ester and activated ester.
14. The rhodamine dye of Claim 4 in which Z¹ is selected from the group consisting of (C₁-C₁₂) alkyleno, (C₁-C₁₂) alkano, (C₅-C₁₀) aryl-diyl and heteroaryl-diyl, phenyl-diyl, phena-1,4-diyl, naphthadiyl, naphtha-2,6-diyl, pyridindiyl and purindiyl.
15. The rhodamine dye of Claim 4 which comprises the structure:



or a salt thereof.

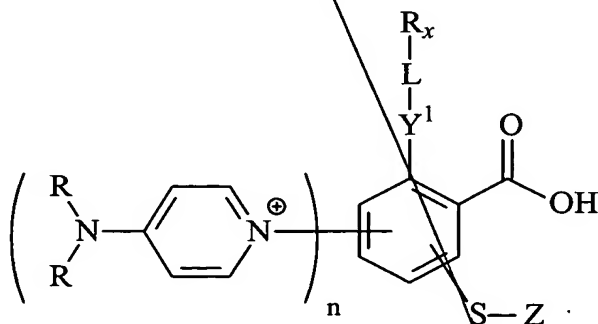
5

16. The rhodamine dye of Claim 15 in which Y is selected from the group consisting of Y-1, Y-2, Y-3 and Y-4.

17. The rhodamine dye of Claim 15 in which Y is selected from the group consisting of Y-20a, Y-21a, Y-22a, Y-23a, Y-24a, Y-25a, Y-31a, Y-34a, Y-35a, Y-36a, Y-39a, Y-41a, Y-42a, Y-43a, Y-44a, Y-45a and Y-46a.

18. The rhodamine dye of Claim 2 which has the structure:

15



wherein:

Y^1 is a rhodamine-type parent xanthene ring attached to the illustrated phenyl group at the xanthene C9 carbon;

L is a bond or linker attached to a xanthene nitrogen atom or a xanthene C4 carbon;

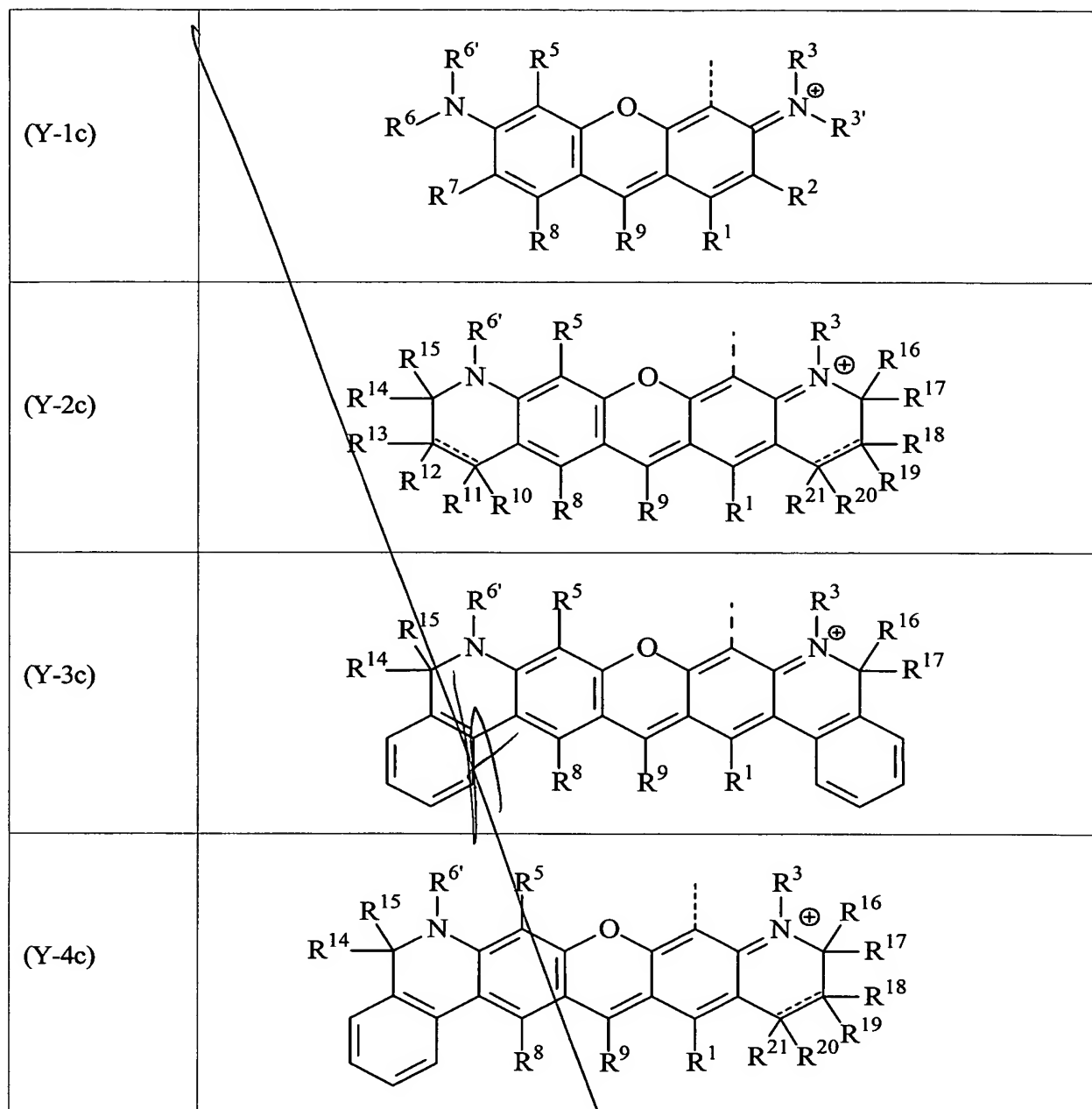
n is 1, 2, or 3; and

R_x is a reactive functional group.

5

19. The rhodamine dye of Claim 18 in which Y¹ is selected from the group consisting of:

(Y-1b)	
(Y-2b)	
(Y-3b)	
(Y-4b)	



wherein the dashed line at the nitrogen or C4 atom indicates the point of attachment of substituent L.

20. The rhodamine dye of Claim 19 wherein:

alkyl is methanyl, ethanyl or propanyl;

aryl is phenyl or naphthyl;

arylaryl is biphenyl;

alkyldiyl or alkylene bridges formed by taking R² together with R³, R⁴ together

with R^{3'}, R⁵ together with R⁶, or R⁷ together with R⁶, are ethano, propano, 1,1-dimethylethano, 1,1-dimethylpropano and 1,1,3-trimethylpropano;

aryleno bridges formed by taking R¹⁰, R¹¹, R¹² and R¹³ together or R¹⁸, R¹⁹, R²⁰ and R²¹ together are benzo.

5

21. The rhodamine dye of Claim 18 in which L is selected from the group consisting of (C₁-C₆) alkylidiyl, (C₁-C₆) alkano, (C₅-C₂₀) arylidiyl, phenylidiyl, phena-1,4-diyl, naphthylidiyl, naphtha-2,6-diyl, naphtha-2,7-diyl, (C₆-C₂₆) arylalkylidiyl -(CH₂)_i- ϕ - and -(CH₂)_i- ψ -, where each *i* is independently an integer from 1 to 6, ϕ is (C₅-C₂₀) arylidiyl, phenylidiyl or phena-1,4-diyl and ψ is

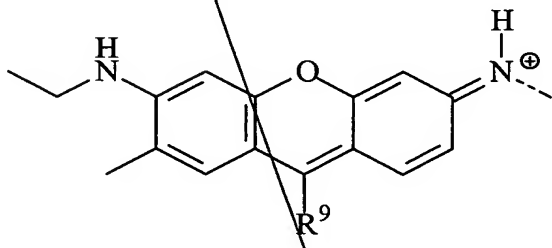
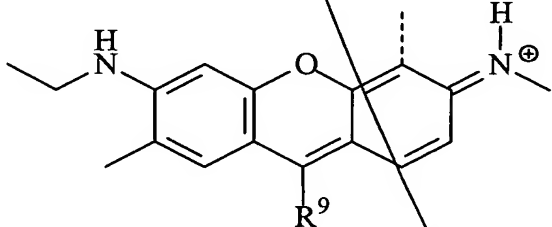
10 naphthylidiyl, naphtha-2,6-diyl or naphtha-2,7-diyl.

22. The rhodamine dye of Claim 18 in which R_x is selected from the group consisting of carboxyl, carboxylate, ester and activated ester.

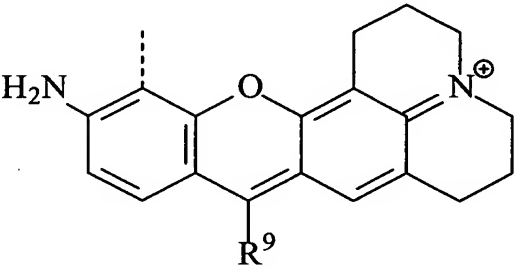
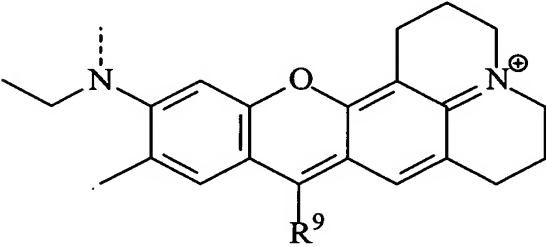
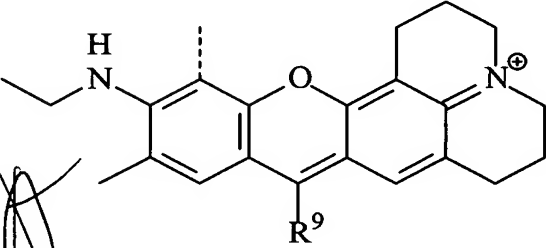
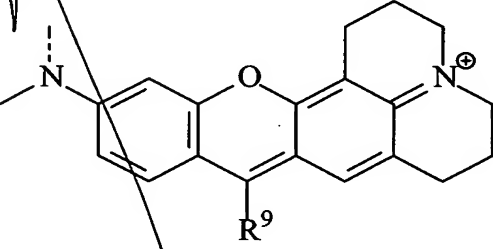
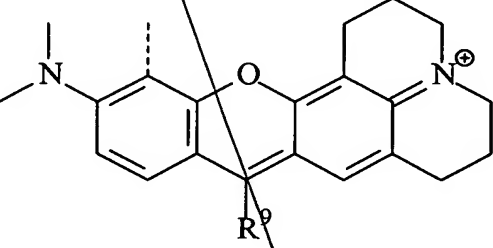
23. The rhodamine dye of Claim 18 in which Z is selected from the group consisting of (C₁-C₁₂) alkyl, (C₁-C₁₂) alkanyl, (C₅-C₁₀) aryl and heteroaryl, phenyl, naphthyl, naphth-1-yl, naphth-2-yl, pyridyl and purinyl.

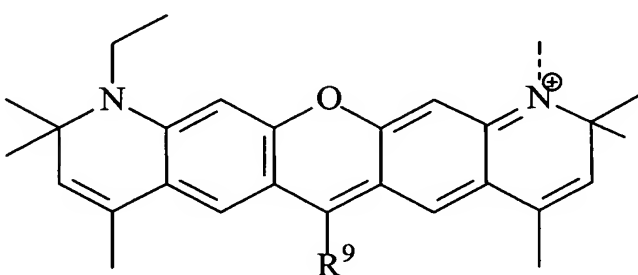
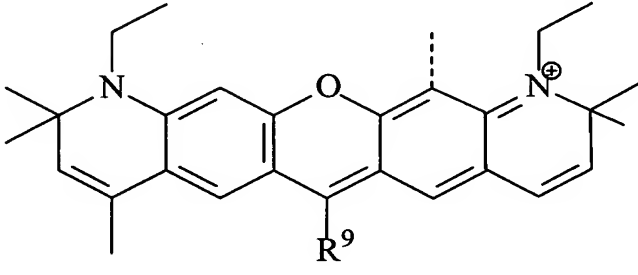
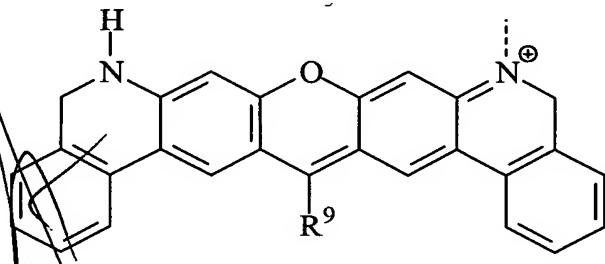
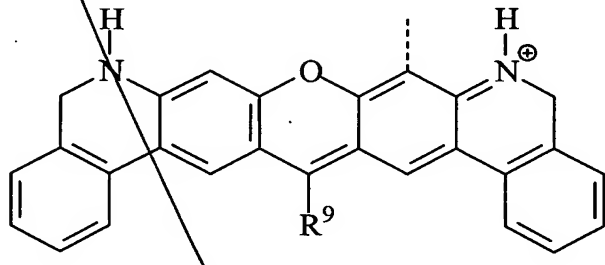
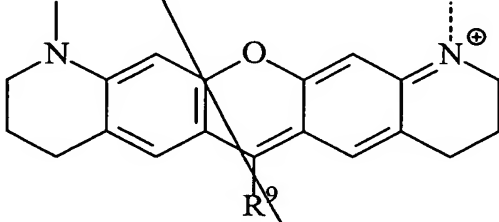
24. The rhodamine dye of Claim 18 in which Y¹ is selected from the group consisting

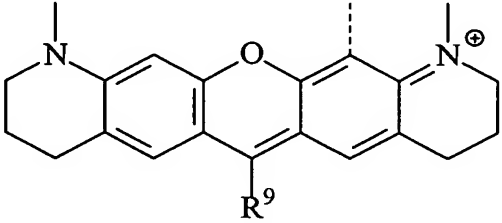
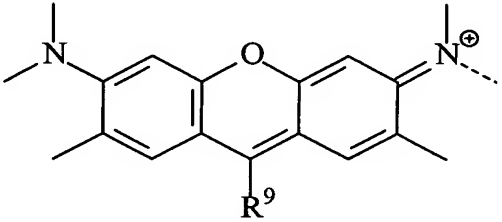
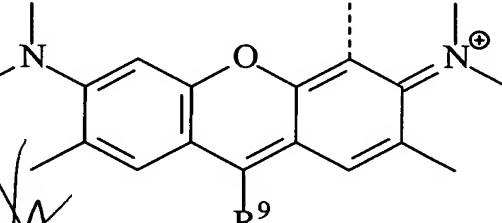
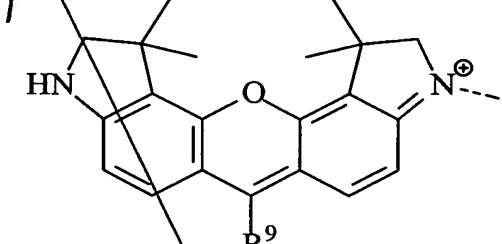
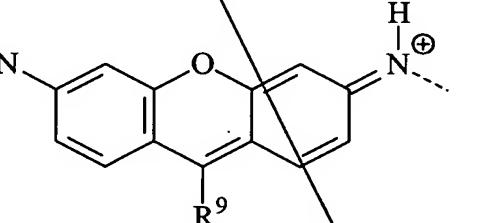
20 of:

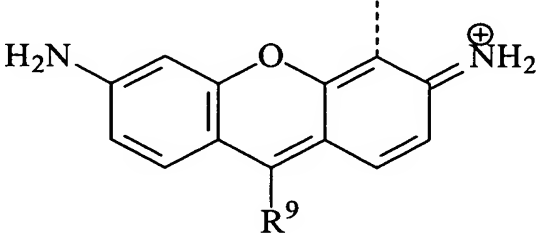
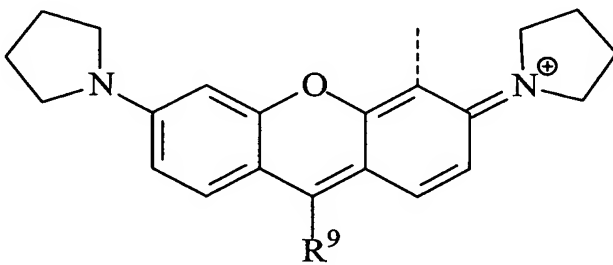
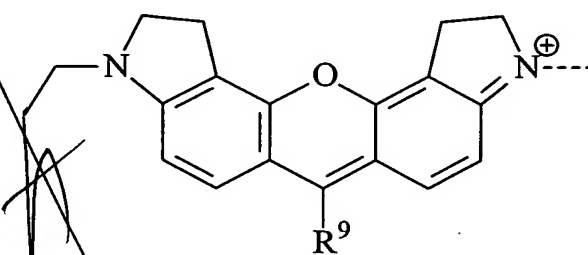
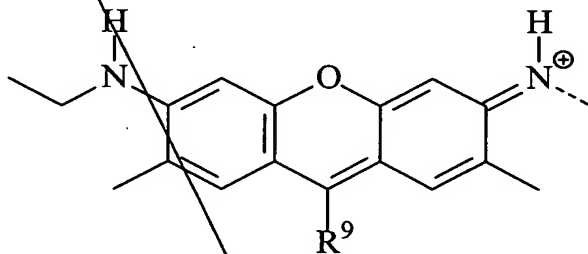
(Y-20b)	
25 (Y-20c)	

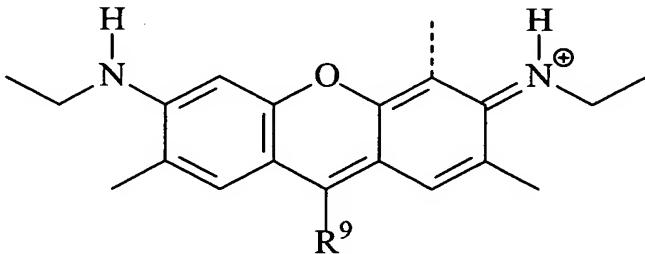
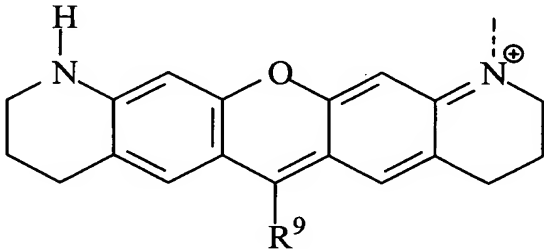
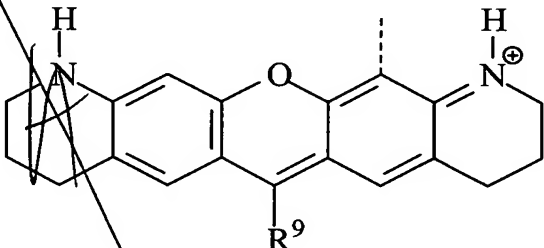
(Y-21b)	
5 (Y-21c)	
(Y-22b)	
10 (Y-22c)	
15 (Y-23b)	

		
5	(Y-24b)	
	(Y-24c)	
10	(Y-25b)	
15	(Y-25c)	

(Y-31b)	
5 (Y-31c)	
(Y-34b)	
10 (Y-34c)	
15 (Y-35b)	

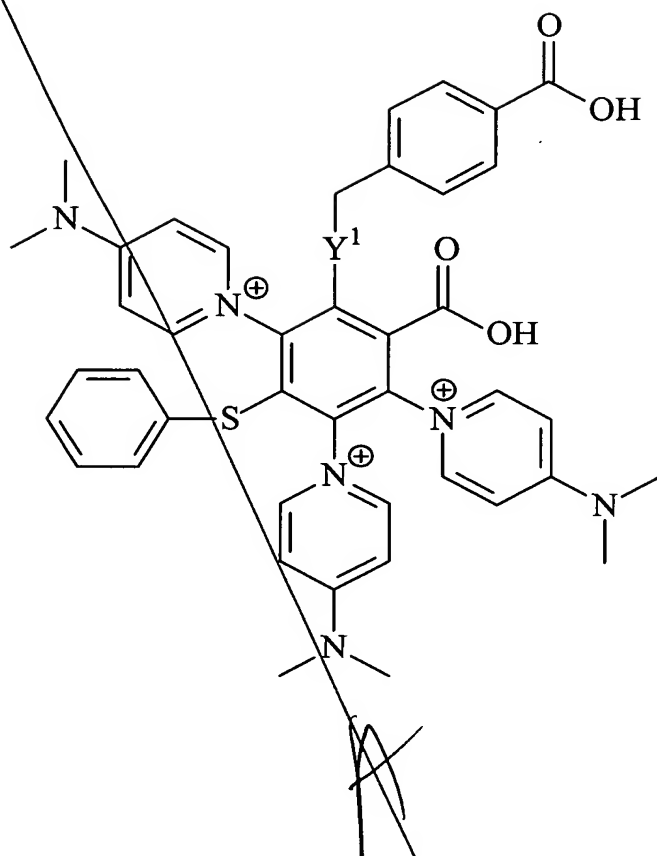
(Y-35c)	
5 (Y-36b)	
(Y-36c)	
10 (Y-37b)	
15 (Y-39b)	

(Y-39c)	
5 (Y-41c)	
10 (Y-42b)	
(Y-43b)	

(Y-43c)	
5 (Y-46b)	
(Y-46c)	

wherein R^9 and the dash at the nitrogen or C4 atom indicates the point of attachment of L.

25. The rhodamine dye of Claim 18 which has the structure:



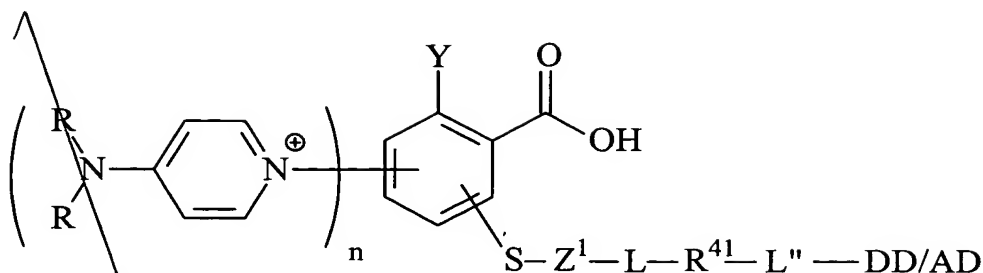
or a salt thereof.

26. The rhodamine dye of Claim 25 in which Y^1 is selected from the group consisting of Y-1b, Y-2b, Y-3b, Y-4b, Y-1c, Y-2c, Y-3c and Y-4c.

27. The rhodamine dye of Claim 25 in which Y^1 is selected from the group consisting of Y-20b, Y-20c, Y-21b, Y-21c, Y-22b, Y-22c, Y-23b, Y-23c, Y-24b, Y-24c, Y-25b, Y-25c, Y-31b, Y-31c, Y-34b, Y-34c, Y-35b, Y-35c, Y-36b, Y-36c, Y-37b, Y-39b, Y-39c, Y-41c, Y-42b, Y-43b, Y-43c, Y-46b and Y-46c.

28. An energy-transfer dye pair comprising a donor dye linked to an acceptor dye, wherein the donor dye or the acceptor dye is a compound according to Claim 1 and either or both of said donor and acceptor dyes include an optional linking moiety.

29. The dye pair of Claim 28 which has the structure:



or a salt thereof, wherein:

R^{41} is a covalent linkage formed upon reaction between a nucleophile and an electrophile;

L'' is a bond or a linker;

n is 1, 2, or 3; and

DD/AD is a donor dye or an acceptor dye which includes a linking moiety.

30. The dye pair of Claim 29 in which Y is selected from the group consisting of Y-1, Y-2, Y-3, Y-4, Y-20a, Y-21a, Y-22a, Y-23a, Y-24a, Y-25a, Y-31a, Y-34a, Y-35a, Y-36a, Y-39a, Y-41a, Y-42a, Y-43a, Y-44a, Y-45a and Y-46a.

31. The dye pair of Claim 29 in which L is a bond.

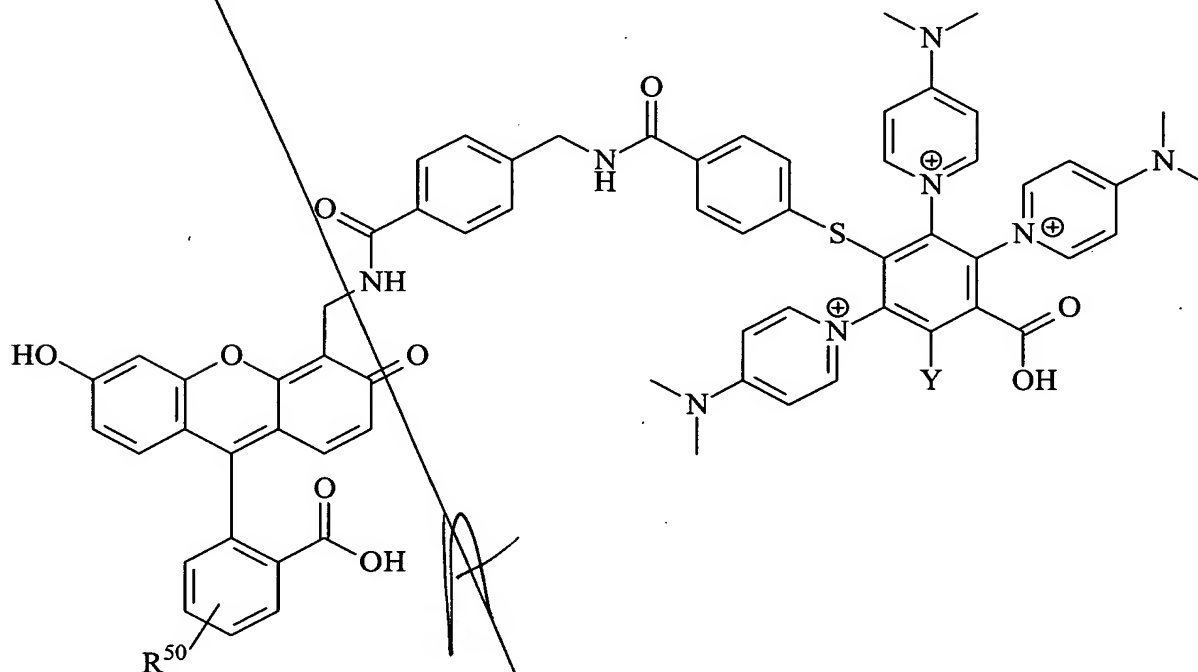
32. The dye pair of Claim 29 in which R^{41} has the formula $-C(O)NR^{45}-$, where R^{45} is hydrogen or (C_1-C_6) alkyl.

33. The dye pair of Claim 29 in which Z^1 is selected from the group consisting of (C_1-C_{12}) alkylene, (C_1-C_{12}) alkano, (C_5-C_{10}) arylidyl and heteroarylidyl, phenylidyl, phena-1,4-diyl, naphthadiyl, naphtha-2,6-diyl, pyridindiyl and purindiyl.

34. The dye pair of Claim 29 in which L'' is $-R^{43}-Z^3-C(O)-R^{44}-R^{45}-$, wherein R^{43} is (C_1-C_6) alkylidyl, preferably (C_1-C_3) alkano, and is bonded to R^{42} , where R^{42} is O, S or NH; Z^3 is 5-6 membered cyclic alkenyldiyl and heteroalkenyldiyl, (C_5-C_{14}) arylidyl and heteroarylidyl; R^{44} is O, S or NH; and R^{45} is (C_1-C_6) alkylidyl, preferably (C_1-C_3) alkano.

35. The dye pair of Claim 29 in which DD/AD is a fluorescein dye in which the linking moiety is a reactive functional group and wherein L" is attached to the fluorescein dye at the xanthene C4 carbon.

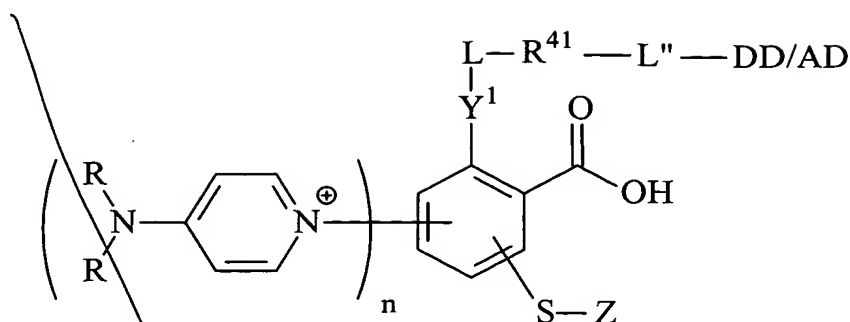
36. The dye pair of Claim 29 which has the structure:



wherein, R⁵⁰ is a carboxyl, a salt, ester or activated ester thereof.

37. The dye pair of Claim 36 in which Y is selected from the group consisting of Y-1, Y-2, Y-3, Y-4, Y-20a, Y-21a, Y-22a, Y-23a, Y-24a, Y-25a, Y-31a, Y-34a, Y-35a, Y-36a, Y-39a, Y-41a, Y-42a, Y-43a, Y-44a, Y-45a and Y-46a.

38. The dye pair of Claim 28 which has the structure:



wherein:

5 R^{41} is a covalent linkage formed upon reaction between a nucleophile and an electrophile;

L'' is a bond or a linker;

n is 1, 2, or 3; and

DD/AD is a donor dye or an acceptor dye which includes a linking moiety.

10 39. The dye pair of Claim 38 in which Y^1 is selected from the group consisting of Y-1b, Y-2b, Y-3b, Y-4b, Y-1c, Y-2c, Y-3c, Y-4c, Y-20b, Y-20c, Y-21b, Y-21c, Y-22b, Y-22c, Y-23b, Y-23c, Y-24b, Y-24c, Y-25b, Y-25c, Y-31b, Y-31c, Y-34b, Y-34c, Y-35b, Y-35c, Y-36b, Y-36c, Y-37b, Y-39b, Y-39c, Y-41c, Y-42b, Y-43b, Y-43c, Y-46b and Y-46c.

15 40. The dye pair of Claim 38 in which L is (C_1-C_6) alkylidyl or (C_1-C_3) alkano.

41. The dye pair of Claim 38 in which R^{41} is an amide of the formula $-C(O)NR^{45}-$, where R^{45} is hydrogen or (C_1-C_6) alkyl.

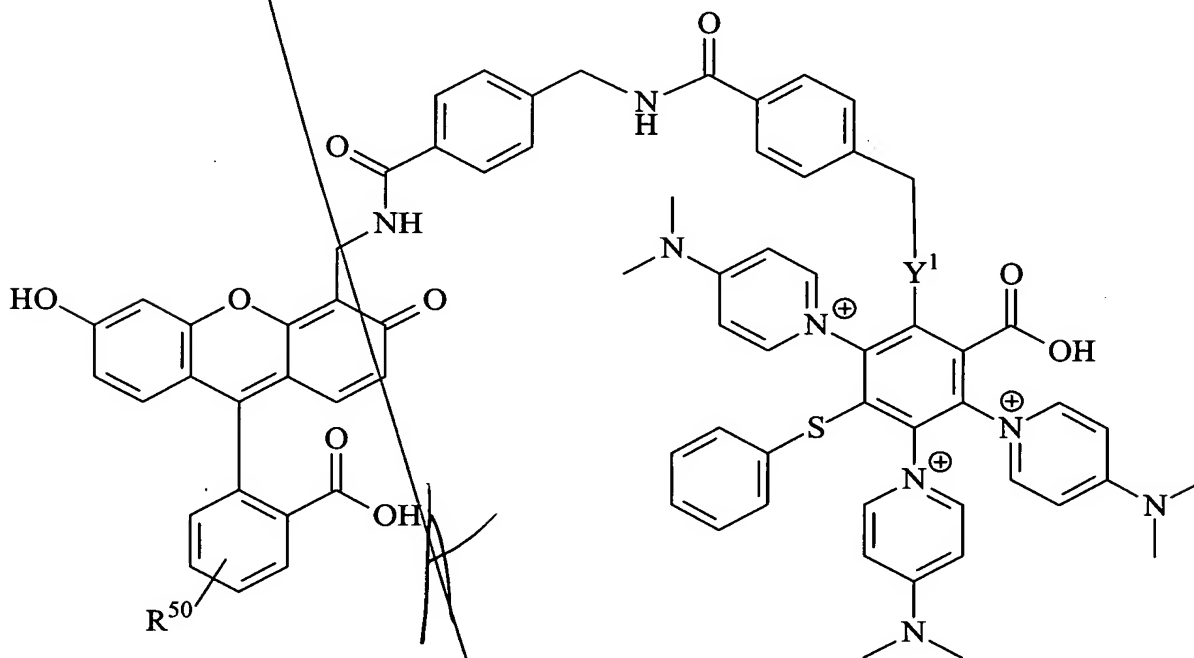
20 42. The dye pair of Claim 38 in which Z is selected from the group consisting of (C_1-C_{12}) alkyl, (C_1-C_{12}) alkanyl, (C_5-C_{10}) aryl and heteroaryl, phenyl, naphthyl, naphth-1-yl, naphth-2-yl, pyridyl and purinyl.

25 43. The dye pair of Claim 38 in which L'' is $-R^{43}-Z^3-C(O)-R^{44}-R^{45}-$, wherein R^{43} is (C_1-C_6) alkylidyl, preferably (C_1-C_3) alkano, and is bonded to R^{42} , where R^{42} is O, S or NH; Z^3 is 5-6 membered cyclic alkenyldyl and heteroalkenyldyl, (C_5-C_{14}) arylidyl and heteroaryldyl; R^{44} is

O, S or NH; and R^{45} is (C_1-C_6) alkylidyl, preferably (C_1-C_3) alkano.

44. The dye pair of Claim 38 in which DD/AD is a fluorescein dye in which the linking moiety is a reactive group R_x and wherein L'' is attached to the fluorescein dye at the 5 xanthene C5 carbon.

45. The dye pair of Claim 38 which has the structure:



10 wherein:

Y^1 is selected from the group consisting of Y-20b, Y-20c, Y-21b, Y-21c, Y-22b, Y-22c, Y-23b, Y-23c, Y-24b, Y-24c, Y-25b, Y-25c, Y-31b, Y-31c, Y-34b, Y-34c, Y-35b, Y-35c, Y-36b, Y-36c, Y-37b, Y-39b, Y-39c, Y-41c, Y-42b, Y-43b, Y-43c, Y-46b and Y-46c; and

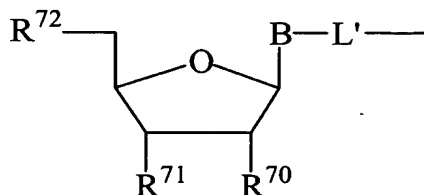
R^{50} is a carboxyl, a salt, ester or activated ester thereof.

15

46. The dye pair of Claim 45 in which Y^1 is selected from the group consisting of Y-1b, Y-2b, Y-3b, Y-4b, Y-1c, Y-2c, Y-3c, Y-4c, Y-20b, Y-20c, Y-21b, Y-21c, Y-22b, Y-22c, Y-23b, Y-23c, Y-24b, Y-24c, Y-25b, Y-25c, Y-31b, Y-31c, Y-34b, Y-34c, Y-35b, Y-35c, Y-36b, Y-36c, Y-37b, Y-39b, Y-39c, Y-41c, Y-42b, Y-43b, Y-43c, Y-46b and Y-46c.

47. A labeled nucleoside/tide or nucleoside/tide analog comprising the rhodamine dye of Claim 2 where Z has the form $Z^1-L-R^{46}-L'-NUC$, wherein:

R^{46} is a linkage formed by reaction between an electrophile and a nucleophile; and $-L'-NUC$ taken together has the structure:



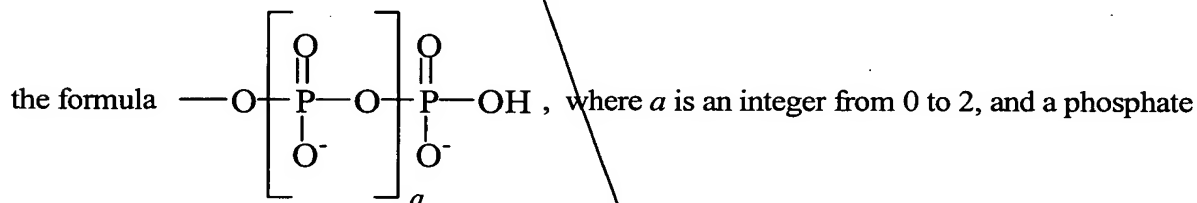
wherein:

B is a nucleobase;

L' is (C_1-C_{20}) alkylidyl and heteroalkylidyl, (C_1-C_{20}) alkylene and heteroalkylene, (C_2-C_{20}) alkyno and heteroalkyno, or (C_2-C_{20}) alkeno and heteroalkeno;

R_{70} and R_{71} , when taken alone, are each independently selected from the group consisting of hydrogen, hydroxyl and a moiety which blocks polymerase-mediated template-directed polymerization, or when taken together form a bond such that the illustrated sugar is 2',3'-didehydroribose; and

R_{72} is selected from the group consisting of hydroxyl, a phosphate ester having



ester analog, or a salt thereof.

48. The labeled nucleoside/tide or nucleoside/tide analog of Claim 47 where Z has the form $Z^1-L-R^{41}-L''-DD/AD-L^3-R^{46}-L'-NUC$, or a salt thereof, wherein:

R^{41} is a covalent linkage formed upon reaction between a nucleophile and an electrophile;

L'' is a bond or a linker;

DD/AD is a donor dye or an acceptor dye which includes a linking moiety; and.

L^3 is a bond or a linker.

49. The labeled nucleoside/tide or nucleoside/tide analog of Claim 47 where Y has the form $Y^1-R^{41}-L''-DD/AD-L^3-R^{46}-L'-NUC$, or a salt thereof wherein:

Y^1 is Y-1, Y-2, Y-3, or Y-4;

R^{41} is a covalent linkage formed upon reaction between a nucleophile and an electrophile;

L'' is a bond or a linker;

DD/AD is a donor dye or an acceptor dye which includes a linking moiety; and.

L^3 is a bond or a linker.

50. A labeled nucleoside/tide or nucleoside/tide analog of Claim 47 where Y has the form $Y^1-R^{41}-L''-DD/AD$ and Z has the form $Z^1-L-R^{46}-L'-NUC$, or a salt thereof; wherein:

Y^1 is Y-1, Y-2, Y-3, or Y-4;

R^{41} is a covalent linkage formed upon reaction between a nucleophile and an electrophile;

L'' is a bond or a linker;

DD/AD is a donor dye or an acceptor dye which includes a linking moiety; and

Z^1 is (C_1-C_{12}) alkylidiyl, (C_1-C_{12}) alkylidiyl independently substituted with one or more of the same or different W^1 groups, (C_5-C_{14}) arylidiyl, and (C_5-C_{14}) arylidiyl, heteroarylidiyl and heteroarylidiyl independently substituted with one or more of the same or different W^2 groups.

51. The labeled nucleoside/tide or nucleoside/tide analog of Claim 47, 48, 49 or 50 which is enzymatically incorporatable.

52. The labeled nucleoside/tide or nucleoside/tide analog of Claim 47, 48, 49 or 50 which is a terminator.

53. The labeled nucleoside/tide or nucleoside/tide analog of Claim 47, 48, 49 or 50 which is enzymatically extendable.

54. The labeled nucleoside/tide or nucleoside/tide analog of Claim 47 in which L' is
 5 selected from the group consisting of:
 propargyl, where the terminal *sp* carbon is covalently attached to nucleobase B and
 the terminal methylene (*sp*³) carbon is covalently attached to F_x; and
 $-\text{C}\equiv\text{C}-\text{CH}_2-\text{O}-\text{CH}_2-\text{CH}_2-\text{NR}^{47}-\text{R}^{48}-$, where R⁴⁷ is hydrogen or (C₁-C₆) alkyl and
 R⁴⁸ is $-\text{C}(\text{O})-(\text{CH}_2)_r-$, $-\text{C}(\text{O})-\text{CHR}^{49}-$, $-\text{C}(\text{O})-\text{C}\equiv\text{C}-\text{CH}_2-$ or $-\text{C}(\text{O})-\phi-(\text{CH}_2)_r-$, where each *r* is
 10 independently an integer from 1 to 5 and ϕ is C₆ arylidiyl or heteroarylidiyl and R⁴⁹ is hydrogen,
 (C₁-C₆) alkyl or a side chain of an encoding or non-encoding amino acid, and where the terminal *sp*
 carbon is covalently attached to nucleobase B and the other terminal group is covalently attached to
 F_x.

15 55. The labeled nucleoside/tide or nucleoside/tide analog of Claim 48 or Claim 49 in
 which L³ is a bond, R⁴⁶ the formula $-\text{C}(\text{O})-\text{NHR}^{51}$, where R⁵¹ is hydrogen or (C₁-C₆) alkyl.

56. The labeled nucleoside/tide or nucleoside/tide analog of Claim 47 in which
 nucleobase B is a purine, a 7-deazapurine, an 8-aza,7-deazapurine, a pyrimidine, a normal
 20 nucleobase or a common analog of a normal nucleobase.

57. The labeled nucleoside/tide or nucleoside/tide analog of Claim 47 or Claim 48 in
 which Y is selected from the group consisting of Y-1, Y-2, Y-3 and Y-4.

25 58. The labeled nucleoside/tide or nucleoside/tide analog of Claim 47 or Claim 48 in
 which Y is selected from the group consisting of Y-20a, Y-21a, Y-22a, Y-23a, Y-24a, Y-25a, Y-
 31a, Y-34a, Y-35a, Y-36a, Y-39a, Y-41a, Y-42a, Y-43a, Y-44a, Y-45a and Y-46a.

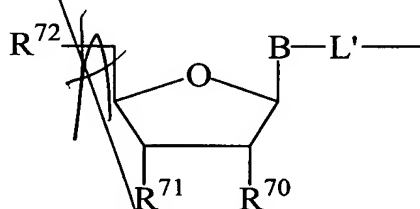
59. The labeled nucleoside/tide or nucleoside/tide analog of Claim 49 or Claim 50 in
 30 which Y¹ is selected from the group consisting of Y-1b, Y-2b, Y-3b, Y-4b, Y-1c, Y-2c, Y-3c and
 Y-4c.

60. The labeled nucleoside/tide or nucleoside/tide analog of Claim 49 or Claim 50 in which Y¹ is selected from the group consisting of Y-20b, Y-20c, Y-21b, Y-21c, Y-22b, Y-22c, Y-23b, Y-23c, Y-24b, Y-24c, Y-25b, Y-25c, Y-31b, Y-31c, Y-34b, Y-34c, Y-35b, Y-35c, Y-36b, Y-36c, Y-37b, Y-39b, Y-39c, Y-41c, Y-42b, Y-43b, Y-46b and Y-46c.

61. A polynucleotide labeled with a rhodamine dye according to Claim 1 or an energy-transfer dye pair according to Claim 28.

62. A method of generating a labeled primer extension product, comprising the step of enzymatically extending a primer-target hybrid in the presence of a mixture of enzymatically-extendable nucleotides capable of supporting continuous primer extension and a terminator, wherein said primer or said terminator is labeled with a rhodamine dye according to Claim 1 or an energy-transfer dye pair according to Claim 28.

63. The method of Claim 62 in which the terminator has the structure:



wherein R₇₀ and R₇₁, when taken alone, are each independently selected from the group consisting of hydrogen, halide, and any moiety which blocks polymerase-mediated template-directed polymerization.

64. The method of Claim 62 in which the terminator is a mixture of four different terminators, one which terminates at a template A, one which terminates at a template G, one which terminates at a template C and one which terminates at a template T or U.

65. The method of Claim 62 in which each of the four different terminators is labeled with a different, spectrally-resolvable fluorophore.

66. A labelled rhodamine dye-polypeptide conjugate comprising the rhodamine dye of Claim 1 and a polypeptide, wherein the polypeptide is selected from the group consisting of a peptide, a protein, and an antibody.

5

67. A method of detecting a rhodamine dye-antibody conjugate, in which said conjugate is a rhodamine dye-antibody conjugate according to Claim 66, comprising the steps of:

- (a) binding the conjugate to a peptide or protein, and
- (b) detecting the rhodamine dye-antibody conjugate bound to the peptide or protein.

10

68. The method of Claim 67 in which the conjugate is bound to the peptide or protein in the presence of a second antibody specific for binding said peptide or protein.

69. The method of Claim 68 in which the second antibody is bound to a solid bead or
15 particle.

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A1